**Name: Toindepi Graciano Zihori Date:04/09/12**

**Task 5**

**Analyse energy audit data**



**• Identify energy usage within the scope of the ICT project and provide a detailed report**

**• Estimate potential energy savings and payback periods for recommended actions**

Detailed report - SD-KPI 1: Energy usage / CO2 emissions

• Energy efficiency of IT products is a key to reach Kyoto target.

• Does the company look for and propose progress on this issue?

Potential energy savings and payback periods for recommended actions e.g.

• IT architecture

• Hardware efficiency

• Software power management

|  |  |  |  |
| --- | --- | --- | --- |
| **Hardware** | **Cost** | **URL** | **Average power** |
| Server | $500 | Generic | 45 watts idle |
| Switch 24 Port TP Link TL1024d GigaBit | $90 | www.digistar.com.au | Idle 7 -8 watts (2 thin clients attached) |
| Thin Client x 1  Wyse SE3215 | n/a – Est. $40 | www.partstore.com | 9 watts (each) |
| Modem/router  Netgear | $176 | www.pcworld.idg.com.au | 6 watts + 1watt for dongle |
| Printer Lexmark Z12 | $25 | www.ebay.com.au | Idle 8 -16 watts |
| Monitor hp compact FP5315 x 2 | $45 | www.ebay.com | 18 watts (each) |
| Thin Client x 1  Ultra Thin Y210 | $74.21 USD | www.aleixpress.com | 7 watts (each) |
| TOTAL | $944 |  | 152 watts (Server + 2 thin clients + 3 monitors+ printer)  COST $0.86 per day |
| TOTAL (estimated) | $2241 |  | 1000 Watts (Server + 20 thin clients + monitors +printer)  COST approx.$7 |

… making IT Infrastructure more efficient reduces the electricity needed to run computing and telecom equipment, the cooling needed to keep facilities at the right temperature, the energy used to build the systems, the resources consumed to build-out new facilities, and the electronic waste that results from equipment disposal.

**Research:** **Sustainability in Information Technology at:**

<http://www.epeat.net/>

<http://sustainablestanford.stanford.edu/sustainable_it>

Answer the following:

1. **Who is EPEAT?**

The Electronic Product Environmental Assessment Tool (EPEAT) is an industrial standard tool for consumers to evaluate the effect of a product on the environment. Developed by academics governments and industry to distinguish products and award standards from Bronze Silver and Gold

1. **Explain the EPEAT Gold, Silver and Bronze standards**

A product must meet at least above 50% of the 8 criterion to be granted Silver and 75% to be granted Bronze then more to get the Gold rating standard

1. **Give an example of a PC /Monitor meeting EPEAT Gold:**

ASUSTek VH196T-P

1. **Give an example of a PC / monitor meeting EPEAT Gold:**

DeLL VOSTRO 3560

1. **Explain the new green labeling brand from EPEAT called ‘EcoSense’**

Is an environmental initiative of SENSE Foundation Inc. The Eco Sense Certification process entails a specialised consultation to determine the environmental sustainability and green commitment achieved by the organising body. To become certified, a project/event/organisation is required to demonstrate by which means it intends to deliver sustainable and low impact practices relevant to its project/event or organisation.  
For those projects and organisations that wish to take their “green” commitment even further – the Eco Sense Rating System is an optional component of the Eco Sense Green Consultancy, which provides an “environmental achievement” rating to projects and organisations which deliver “environmental and sustainable” accomplishments beyond carbon neutrality and general greening. The Eco Sense Rating System is offered to organisations and projects that demonstrate dedication to minimising ecological harm and creating environmental sustainability.  
The Eco Sense rating system which operates on a three level rating system Level 3 demonstrates ”High Commitment” level 4 - “Excellence”, with level 5 equating to “True Leadership in Environmental Sustainability”.

1. **Explain the new mandatory environmental standards for ICT procurement by the Australian Government**

Procurement now must include compliance with ISO 14021 at the EPEAT Silver level as a minimum. Product take back must be in place this includes mobile devices, toner and computers for recycling. Also packaging of the equipment must be covered by the NPC (National Packaging Convent) or comply with the nation environment protection measure.

1. **Provide a detailed report on** **energy usage within the LAN case study for each class of hardware:**
   1. **Common Equipment – Server, modem/router, switch**
   2. **Desktop Equipment- Thin Clients, monitors**
   3. **Printing Equipment – Inkjet printer**

|  |  |  |  |
| --- | --- | --- | --- |
| **Common Equipment** | **Average Energy** | **Proportion of Total** | **Annual CO2 Emissions** |
| **Common Equipment** | 60 Watts (Router + Server + Switch) | 46% | n/a |
| **Desktop Equipment** | 52 Watts (2x Thin Clients + monitors) | 41% | n/a |
| **Printing Equipment** | 16 Watts (1x printer) | 13% | n/a |

1. **What strategies has Stanford University used to reduce energy usage for each class of hardware?**

Backups are done during the day.

All hardware should be EPEAT Gold standard

Turning off all equipment when not in use

Most printing is double sided now

1. **Recommend actions for each class of hardware for** **the LAN case study**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Class of hardware** | **Recommendation/s** | **Potential energy savings** | **Cost** | **Payback** | **Assumptions** |
| Common Equipment | New equipment. | 20-50% | $1500 |  | **1** |
| Desktop Equipment | New Equipment | 50%+ | $429 each |  | **2** |
| Printing Equipment | New Equipment | 30-50% | $330+ |  | **3** |

**Assumptions**

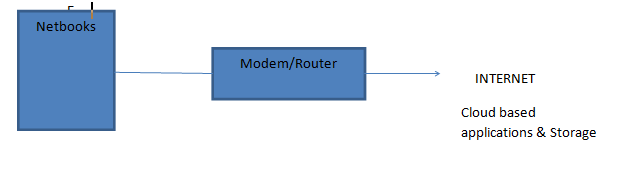
**1** New equipment are more energy efficient and uses PoE

**2** Future technology will be even more energy efficient

**3** Next generation printing is print-power-on generated and printer is always off when not in use thereby saving both equipment and power consumption

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Practicum - Measure the Desktop power consumption for a Web client for a small school:



|  |  |  |  |
| --- | --- | --- | --- |
| Condition | Web Client  1 | Web Client  2 | Web Client  3 |
| ID/Serial No: | Y210 | Lennovo 8172-LMS | Old WYSE |
| off | 0 | 1.5 | 0 |
| Max boot | 14 | 150 | 8.5 |
| idle | 12 | 135 | 7.6 |
| W/P | 12 | n/a | n/a |
| Internet | 13 | 131 | n/a |
| Music | n/a | 143 | n/a |
| Video | n/a | 143 | n/a |
| Monitor | 18 | 18 | 18 |

Recommend a ‘Greenn’ printer for a small school:

URL:

Examples:

* Replace Server HDD with SSD
* Replace server MB with high performance quad core 32GB RAM with capacity for 64+ thin clients
* Replace monitors
* “green” printing
* “cloud” services

**Best Practice Sustainability at Work**

**Innovative IT Technologies reduce infrastructure and conserve energy**

* According to a May 2007 report from Cisco, packet voice networking costs only 20 to 30 percent of an equivalent circuit-based voice network. Unified messaging services allows the consolidation of fax machines, video conference rooms and voicemail systems into a single platform, with infrastructure cost savings of as much as 40%.
* Lyra Research states that usage of converged network copier-printers products allows equipment consolidation, reducing the number of output devices in a typical corporation by up to 60%. In addition, IT departments are freed from supporting diverse types of printers. Hewlett-Packard‘s Neoware thin client computing solutions announced that its devices can help companies reduce computing-related energy costs by up to 90 percent.
* <http://www.greenit.net/solutions_enterprise.html>